IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):   JANG, Kyung-Hun et al.   **GROUP ART UNIT: 2616**

APPLICATION NO.:   10/612,141   **EXAMINER: Davenport, Mon Cheri S.**

FILING DATE: July 2, 2003   **DATED: November 7, 2007**

FOR: **RELIABLE MULTICAST DATA RETRANSMISSION METHOD BY GROUPING WIRELESS TERMINALS IN WIRELESS COMMUNICATION MEDIUM AND APPARATUS FOR THE SAME**

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

In response to the Office Action of the United States Patent and Trademark Office dated August 7, 2007, please consider the following amendments and Request for Reconsideration.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals and amplitudes of signals output from the wireless terminals;

(b) selecting a repeater to retransmit multicast packets from each group, and arranging the order in which repeaters retransmit multicast packets;

(c) creating a multicast packet train header indicating characteristics of each of the multicast packets;

(d) multicasting each of the multicast packets including the created multicast packet train header; and

(e) retransmitting the multicast packets in the order arranged in step (b), irrespective of whether the wireless terminals receive the multicast packets.

2. (Original) The multicast data retransmission method of claim 1, wherein step (b) further comprises the step of selecting a wireless terminal, which outputs a signal with the greatest amplitude, as the repeater from each group by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal.

3. (Original) The multicast data retransmission method of claim 1, wherein the multicast packet train header comprises:

multicast train ID information which is used to identify a multicast packet train;

information about the number of groups of wireless terminals, the wireless terminals being connected to a wireless network and receiving the multicast packets;

information about the number of multicast packets in each group, the multicast packet being transmitted after the multicast packet train header is multicasted; and

forward error correction information which is used to correct an error of the multicast packet train header.

4. (Currently Amended) A multicast data retransmission method used in a system that retransmits multicast packets by using a wireless terminal and an access point, the multicast data retransmission method comprising the steps of:

(a) receiving from the access point information on a group which the wireless terminal belongs to;

(b) if the wireless terminal is selected as a repeater that is to retransmit the multicast packets, receiving information from the access point about the order in which repeaters retransmit the multicast packets; and

(c) receiving a retransmission command from the access point and retransmitting the multicast packets to other wireless terminals, irrespective of whether the wireless terminals receive the multicast packets.

5. (Original) The multicast data retransmission method of claim 4, wherein step (b) further comprises the step of, if the wireless terminal is not selected as the repeater, receiving the retransmitted multicast packets and discarding the retransmitted multicast packets if the multicast packets have already been received without a packet error.

6. (Previously Presented) A multicast data retransmission method, comprising the steps of:

(a) grouping wireless terminals based on distances between an access point and the wireless terminals and amplitudes of signals output from the wireless terminals; and

(b) selecting a repeater to retransmit multicast packets from each group and retransmitting the multicast packets, wherein step (b) further comprises the steps of:

(b1) selecting a wireless terminal which outputs a signal with the greatest amplitude as the repeater by determining a status of a channel of the wireless terminal based on the amplitude of signal output from the wireless terminal;

(b2) determining the order in which repeaters retransmit the multicast packets; and

(b3) transmitting a retransmission command to the repeaters in the order in which the repeaters retransmit the multicast packets.

7. (Cancelled)

8. (Original) An apparatus for multicast data retransmission, the apparatus comprising:

a grouping unit which groups wireless terminals based on distances between the wireless terminals and amplitudes of signals output from the wireless terminals;

a repeater selecting and retransmission order arranging unit which selects the repeater to retransmit the multicast packets from each group, and arranges the order in which repeaters retransmit the multicast packets;

a multicast packet train header creating unit which creates a multicast packet train header before the multicast packets are multicasted;

a multicast packet train header transmitting unit which transmits the created multicast packet train header to all wireless terminals; and

a retransmitting unit which retransmits the multicast packets in the order arranged by the repeater selecting and retransmission order arranging unit, after the multicast packet train header transmitting unit multicasts the multicast packet train header.

9. (Original) The apparatus of claim 8, wherein the retransmitting unit transmits the retransmission command to a repeater, which is first to retransmit the multicast packet, and transmits the retransmission command to a repeater which is second to retransmit the multicast packet.

10. (Previously Presented) A computer readable recording medium readable by a machine, and being encoded with a multicast packet train header used in multicast data transmission, said header comprising:

multicast train ID information which is used to identify a multicast packet train;

information about the number of groups of wireless terminals, the wireless

terminals being connected to a wireless network and receiving the multicast packets;

information about the number of multicast packet in each group which indicates the number of multicast packet in each group, the multicast packet being to be transmitted after the multicast packet train header is multicasted; and

forward error correction information which is used to correct an error of the multicast packet train header.

11. (Previously Presented) A computer readable recording medium readable by a machine, and being encoded with a computer program for executing the multicast data retransmission method of claim 1.

12. (Previously Presented) A computer readable recording medium readable by a machine, and being encoded with a computer program for executing the multicast data retransmission method of claim 4.

13. (Previously Presented) A computer readable recording medium readable by a machine, and being encoded with a computer program for executing the multicast data retransmission method of claim 6.

14. (Cancelled)

REQUEST FOR RECONSIDERATION

Reconsideration of the present application is respectfully requested.

Claims 1-6 and 8-13 are pending in the application, with Claims 1, 4, 8 and 10 being written in independent form.

The Examiner rejected Claims 10-13 under 35 U.S.C. §101 as being non-statutory. The Examiner rejected Claims 1-2, 4-5 and 11-12 under 35 U.S.C. §102(b) as being anticipated by "Reliable Multicast Transport Protocol" to *Paul et al.* (hereinafter *Paul*). The Examiner rejected Claims 8-9 under 35 U.S.C. §102(b) as being anticipated by EPA 01303442.6 to *Sato et al.* (hereinafter *Sato*). The Examiner rejected Claims 10 and 14 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,065,066 to *Mizutani et al.* (hereinafter *Mizutani*). Under 35 U.S.C. §103(a), the Examiner rejected Claim 3 as being unpatentable over *Paul* in view of *Mizutani*, Claims 6 and 13 as being unpatentable over *Sato* in view of *Paul*.

Please amend Claims 1 and 4 as shown herein. No new matter has been added.

Regarding the §101 rejection of Claims 10-13, the Examiner alleged that these claims are directed to non-statutory subject matter. Applicants respectfully assert that the Examiner's rejection falls short of presenting a *prima facie* case for unpatentability under §101 because the Examiner merely alleged that these claims do not fall within a statutory category of invention, and failed to complete the statutory subject matter analysis such as whether a judicial exception applied, as required under the applicable USPTO Interim Guidelines.

In addition, the Examiner alleged that the specification discloses that the phrase computer readable medium is defined as carrier waves. This allegation fails to acknowledge Applicants' previous specification amendment, which deleted "carrier waves" from being included as a computer readable medium herein. Specifically, this amendment was made because the medium is *recorded* on the carrier waves, instead of the medium *being* the carrier waves. The Examiner's

rejection does not reflect this amendment.

The Examiner's terse analysis appears to be further flawed here. Particularly, it was alleged that computer readable medium is not statutory, and it is suggested in the rejection that the rejected claims are directed to "non-functional descriptive material". Applicants adamantly disagree. Non-functional descriptive material includes, for example, literary works and music, which certainly does not describe the multicast packet train header used in multicast data transmission of the rejected claims. See *M.P.E.P. §2106.01*. Instead, these claims are directed to "functional descriptive material," which "when recorded on some computer readable medium, becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of descriptive material to be realized." *Id.*

For at least the foregoing reasons, it is respectfully submitted that the §101 rejection of Claims 10-13 is fatally flawed, and must be withdrawn. Withdrawal of the same is respectfully requested.

Regarding the §102(b) rejection of Claims 1-2, 4-5 and 11-12, the Examiner alleged that *Paul* discloses each and every element of the rejected claims. Applicants respectfully assert that the Examiner is incorrect. Claim 1 recites, *inter alia*, grouping wireless terminals based on distances between an access point and the wireless terminals and amplitudes of signals output from the wireless terminals. *Paul* discloses, in the passages cited by the Examiner, that each DR (or designated receiver) sends a packet including a TTL value to a given receiver. The higher the TTL value, the closer the DR is to the receiver. In this manner, *Paul* determines a local region to be defined around each DR. Accordingly, *Paul* considers distances between an access point and the wireless terminals. However, *Paul* fails to consider grouping wireless terminals based on amplitudes of signals output from the wireless terminals, as recited in Claim 1.

Applicants presented the foregoing argument to the Examiner in the previous Response. In the Response to Arguments, the Examiner once again relied on page 412, col. 2, paragraphs 3-4 in *Paul*, as teaching the recitation at issue. Essentially, the Examiner alleged that the TTL value

discussion in *Paul* teaches grouping wireless terminals based on amplitudes of signals output therefrom. However, it is respectfully asserted that this §102(b) rejection cannot stand based on this reliance in *Paul*.

Paul makes no express teaching of grouping wireless terminals based on amplitudes of signals output therefrom. Thus, under §102(b) the rejection could only be maintained if the recitation at issue is implicit in *Paul*, specifically from the TTL teachings upon which the Examiner relies. However, TTL is merely an Internet protocol value that tells a network router whether a packet has been in a network too long and should be discarded. In other words, TTL deals with a count of the number of router hops the packet is allowed before it is to be discarded. Accordingly, it is respectfully asserted that grouping wireless terminals based on amplitudes of signals output from the wireless terminals is not even implicit in *Paul*.

Additionally, Claim 4 recites, *inter alia*, receiving a retransmission command from the access point and retransmitting the multicast packets to other wireless terminals, irrespective of whether the wireless terminals receive the multicast packets. *Paul* fails to disclose this recitation. The Examiner cited page 409, paragraph 2, but nowhere in this paragraph is there discussed the access point (or access node (AN) in *Paul*). Moreover, there is absolutely no disclosure of receiving a retransmission command, let alone from an access point, in these cited passages of *Paul*, contrary to the rejection and to the Examiner's Response to Arguments.

Accordingly, it is respectfully submitted that *Paul* fails to disclose each and every element of Claims 1-2, 4-5 and 11-12, as the Examiner alleged. Withdrawal of the §102(b) rejection of Claims 1-2, 4-5 and 11-12, therefore, is respectfully requested.

Regarding the §102(b) rejection of Claims 8-9, the Examiner alleged that *Sato* discloses each and every element of the rejected claims. However, there is no repeater selecting unit disclosed in *Sato*, and there is no unit that selects a repeater to retransmit the multicast packet from each group, as recited *inter alia* in Claim 8. Also, there is no retransmission order arranging unit that arranges the order in which repeaters retransmit the multicast packets, as claimed. In contrast,

it is respectfully asserted that *Sato* "determines mobile terminals to which multicast information can be retransmitted in accordance with a given standard." See *Sato*, paragraph [0035], lines 3-5, as cited by the Examiner.

Moreover, it is noted that in a subsequent rejection herein, i.e., the §103(a) rejection of Claims 6 and 13, the Examiner actually conceded that, "*Sato* fails to specifically disclose determining the order and repeating in the order." In other words, the Examiner expressly contradicted the §102(b) rejection of Claims 8-9, which alleged *inter alia* that *Sato* discloses, "arranges the order in which repeaters retransmit the multicast packets." For at least the foregoing reasons, it is respectfully submitted that the §102(b) rejection of Claims 8-9 should be withdrawn. Withdrawal of the same is respectfully requested.

Regarding the §102(e) rejection of Claims 10 and 14, the Examiner alleged that *Mizutani* discloses each and every element of the rejected claims. The Examiner's rejection, at least with respect to Claim 14, is incorrect because there is no Claim 14 currently pending in this application. In addition, the Examiner alleged that "information about the number of multicast packet in each group which indicates the number of multicast packet in each group" as recited *inter alia* in Claim 10, is taught in FIG. 4 of *Mizutani*. Specifically, the Examiner made the following curious assertion:

The information (i.e. terminal ID 1-A) used in this table are the terminal ID, because the ID use letters that are sequential, which is associated with a number of packets in each group. See *Office Action*, at page 8, last paragraph.

Respectfully, this allegation is totally unsupported by *Mizutani*. There is absolutely no mention, either express or implicit, of the terminal ID using sequential letters with respect to FIG. 4, or anywhere in *Mizutani* for that matter. Applicants have no idea what prompted the Examiner to make that allegation. There is nothing taught in *Mizutani* that reads on the recitation at issue. The §102(e) rejection of Claims 10 and 14 should be therefore withdrawn. Withdrawal of the same is respectfully requested.

Regarding the §103(a) rejection of Claim 3, it is respectfully submitted that this rejection is incorrect at least in view of the foregoing arguments with respect to the §102(b) rejection of Claims 1-2, 4-5 and 11-12, as well as the §102(e) rejection of Claims 10 and 14. Accordingly, withdrawal of the rejection is respectfully requested.
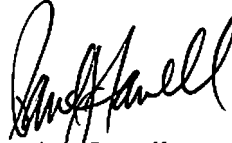
Regarding the §103(a) rejection of Claims 6 and 13, it is respectfully submitted that this rejection is incorrect at least in view of the foregoing arguments with respect to the §102(b) rejection of Claims 8-9. Accordingly, withdrawal of the rejection is respectfully requested.

Regarding the rejection of Claim 3 under §103(a), it is respectfully submitted that this rejection should be withdrawn at least in view of the arguments with regard to the rejection of Claims 1-2, 4-5 and 11-12 above, as well as the §102(e) rejection of Claims 10 and 14. Accordingly, withdrawal of the rejection is respectfully requested.

Independent Claims 1, 4, 6, 8 and 10 are believed to be in condition for allowance. Without conceding the patentability per se of dependent Claims 2, 3, 5, 9 and 11-13, these are likewise believed to be allowable by virtue of their dependence on their respective independent claims. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 2, 3, 5, 9 and 11-13 is respectfully requested.

Accordingly, all of the claims pending in the Application, namely, Claims 1-6 and 8-13, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

Paul J. Farrell
Reg. No. 33,494
Attorney for Applicants

THE FARRELL LAW FIRM
333 Earle Ovington Blvd. Suite 701
Uniondale, New York 11553
Tel: (516) 228-3565
Fax: (516) 228-8475

PJF/RCC/dr